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EXAMINER	
LEE, ANDREW CHUNG CHEUNG	
ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/731,827	SHINOHARA ET AL.	
	Examiner	Art Unit	
	Andrew C. Lee	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *May 04,2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 16, 17, 18, 19, 2, 20, 3, 5, 6, 7, 10, 11, 12, 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Benamara (U.S. Patent No. 6128413).

Regarding claims 1, 16, 17, 18, 19, Benamara discloses the limitation of a data compression system for compressing an original time series data with a various waveform (Abstract, lines 1 – 3, lines 15 – 18), comprising a compression unit that compresses the original time series data without damaging characteristics of a waveform information in the various waveform, said waveform information including a signal with a various change (Fig. 1, element 120, data compression module); and an encoding unit that encodes the compressed time series data to generate a compression code (Fig. 2, element 230, encoding, column 5, lines 60 – 63).

Regarding claims 2, 20, Benamara discloses the limitation of the data compression system according to claimed wherein said signal with the various change includes one of a step-like signal change and a local signal average value, and wherein said compression unit compresses the original time series data without damaging a

waveform information on non- stationary behavior thereof (column 1, lines 26 – 39; lines 60 – 64).

Regarding claim 3, Benamara discloses the limitation of the data compression system according to claimed wherein said compression unit performs a wavelet transform to the original time series data by using a transform coefficients to decompose the original time series data into a predetermined level numbers of component waveforms, each of said component waveforms of each level having local peak value data (column 3, lines 25 – 30); and extracts at least one of the local peak value data of each of the component waveforms, said extracted local peak value data having an absolute value which is not less than a predetermined threshold value (column 3, lines 29 – 35), and wherein said encoding unit encodes the extracted local peak value data of each of the component waveforms of each of the levels on the basis of information used for the decomposition of the compression unit to generate the compression code (column 3, lines 35 – 57).

Regarding claims 5, 6, Benamara discloses the limitation of the data compression system according to claimed wherein said encoding unit transmits the compression code through a network (Fig. 8, column 11, lines 47 – 53), further comprising a decompression unit that is intercommunicated through the network with the encoding unit and receives the transmitted compression code to decompress the received compression code, thereby reconstructing the characteristics of said waveform information of the original time series data (column 3, lines 66 – 67; column 4, lines 1 – 13).

Regarding claim 7, Benamara discloses the limitation of the data compression system according to claim 3, wherein said original time series data includes first time series data and second time series data, said first and second time series data having a correlation of input and output as a control model with each other, said first time series data corresponding to the input, said second time series data corresponding to the output (column 1, lines 26 – 33; column 2, lines 19 – 23), said compression unit performs the wavelet transform to the first original time series data by using the transform coefficients to decompose the first original time series data into a predetermined level numbers of component waveforms, each of said component waveforms of each level having local peak value data (column 3, lines 25 – 29); extracts at least one of the local peak value data of each of the component waveforms, said extracted local peak value data having an absolute value which is not less than a predetermined threshold value; and generates a model parameter on the basis of the control model identifying the correlation of input and output (column 10, lines 30 – 37), and wherein said encoding unit encodes the extracted local peak value data of each of the component waveforms of each of the levels of the first time series data on the basis of information used for the decomposition of the compression unit to generate a first compression code (column 10, lines 38 – 43); generates the compression code corresponding to the original time series data on the basis of the generated first compression data corresponding to the first time series data and the generated model parameter corresponding to the second time series data (column 10, lines 43 – 50); and transmits the generated compression code through a communication network, further

comprising a decompression unit that is intercommunicated through the communication network with the encoding unit (Fig. 8, column 11, lines 47 – 49; column 4, lines 49 – 68), said decompression unit comprising: a receiving unit that receives the transmitted compression code to separate the first compression code and the model parameter (Fig. 8, element 832, column 11, lines 62 – 65); an inverse wavelet transform unit that performs an inverse wavelet transform to the first compression code to reconstruct the first time series data corresponding to the input (Fig. 5B, element 544, column 10, lines 57 – 66); and a reconstruction unit that reconstructs, on the basis of the control model, the reproduced first time series data and the model parameter, the second time series data (column 10, lines 57 – 66).

Regarding claims 10, 11, 12, 15,Benamara discloses the limitation of the data compression system according to claimed wherein the decompression unit presents compression conditions for each cutting out of the original data to the compression unit through the network on the basis of a supervisory result of the reconstructed time series data based on the original time series data, said compression unit, according to the presented compression conditions, compresses the original time series data according to the compression conditions (column 3, lines 66 – 67; column 4, lines 1 – 13), the encoding unit generates the compression code on the basis of the compressed time series data to transmit the compression code through the network to the decompression unit, and wherein said decompression unit sequentially decompresses the transmitted compression code to display thereon the decompressed data (Fig. 2, element 230, encoding, column 5, lines 60 – 63).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 4, 8, 9, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benamara (U.S. Patent No. 6128413) in view of Li (U.S. Patent No. 5684693).

Regarding claim 4, Benamara discloses the limitation of the data compression system according to claimed wherein said extracted peak value data includes a peak value thereof and a position in a data-frame of each level thereon (column 3, lines 29 – 35), and Benamara does not disclose expressly the information used for the decomposition includes a mother wavelet function, a total number of the levels and one of the component waveforms having a low frequency of a final level, one of said component waveforms having the low frequency of the final level is one of a smoothed signal value and an average value of the original time series data. Li discloses the limitation of the information used for the decomposition includes a mother wavelet function, a total number of the levels and one of the component waveforms having a low frequency of a final level, one of said component waveforms having the low frequency of the final level is one of a smoothed signal value and an average value of the original time series data (column 2, lines 40 – 67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Benamara to

include the information used for the decomposition includes a mother wavelet function, a total number of the levels and one of the component waveforms having a low frequency of a final level, one of said component waveforms having the low frequency of the final level is one of a smoothed signal value and an average value of the original time series data such as that taught by Li in order to provide an efficient data-compression method for use in transmitting data from borehole logging tools over a band-limited transmission link providing information as to whereabouts of data values that are rejected due to thresholding.

Regarding claim 8, Benamara discloses the limitation of the data compression system according to claimed wherein said extracted peak value data includes a peak value thereof and a position in a data-frame of each level thereon (column 3, lines 29 – 35), and Benamara does not disclose expressly the data compression system according to claimed wherein said compression unit refers a mother wavelet code transform table by using a predetermined mother wavelet function to extract a transform code corresponding to the predetermined mother wavelet- function and compresses the original time series data by using the extracted transform code, and wherein said inverse wavelet transform unit stores thereon the mother wavelet code transform table, refers the mother wavelet code transform table by using the transform code of the compression code to extract the predetermined mother wavelet and function decompresses the compression code by using the predetermined mother wavelet code . Li discloses the limitation of the data compression system according to claimed wherein said compression unit refers a mother wavelet code transform table by using a

predetermined mother wavelet function to extract a transform code corresponding to the predetermined mother wavelet- function and compresses the original time series data by using the extracted transform code (column 2, lines 40 – 67), and wherein said inverse wavelet transform unit stores thereon the mother wavelet code transform table, refers the mother wavelet code transform table by using the transform code of the compression code to extract the predetermined mother wavelet and function decompresses the compression code by using the predetermined mother wavelet code (column 3, lines 7 – 19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Benamara to include the data compression system according to claimed wherein said compression unit refers a mother wavelet code transform table by using a predetermined mother wavelet function to extract a transform code corresponding to the predetermined mother wavelet- function and compresses the original time series data by using the extracted transform code, and wherein said inverse wavelet transform unit stores thereon the mother wavelet code transform table, refers the mother wavelet code transform table by using the transform code of the compression code to extract the predetermined mother wavelet and function decompresses the compression code by using the predetermined mother wavelet code such as that taught by Li in order to provide an efficient data-compression method for use in transmitting data from borehole logging tools over a band-limited transmission link providing information as to whereabouts of data values that are rejected due to thresholding.

Regarding claim 9, Benamara discloses the limitation of the data compression system according to claimed wherein said extracted peak value data includes a peak value thereof and a position in a data-frame of each level thereon (column 3, lines 29 – 35), and Benamara does not disclose expressly the data compression system according to claimed further comprising a storing unit that stores thereon a mother wavelet code transform table, wherein said compression unit, when referring the mother wavelet function table, inquires the transform code of the storing unit by using the predetermined mother wavelet function to extract the transform code issued by the storing unit on the basis of the wavelet code transform table, and wherein said decompression unit, when referring the mother wavelet function, inquires the mother wavelet function of the storing unit by using the transform code to extract the mother wavelet function issued by the storing unit on the basis of the wavelet code transform table. Li discloses the limitation of expressly the data compression system according to claimed further comprising a storing unit that stores thereon a mother wavelet code transform table, wherein said compression unit, when referring the mother wavelet function table, inquires the transform code of the storing unit by using the predetermined mother wavelet function to extract the transform code issued by the storing unit on the basis of the wavelet code transform table (column 2, lines 40 – 67; column 3, lines 7 – 19), and wherein said decompression unit, when referring the mother wavelet function, inquires the mother wavelet function of the storing unit by using the transform code to extract the mother wavelet function issued by the storing unit on the basis of the wavelet code transform table (column 3, lines 60 – 67). It would

have been obvious to one of ordinary skill in the art at the time the invention was made to modify Benamara to include expressly the data compression system according to claimed further comprising a storing unit that stores thereon a mother wavelet code transform table, wherein said compression unit, when referring the mother wavelet function table, inquires the transform code of the storing unit by using the predetermined mother wavelet function to extract the transform code issued by the storing unit on the basis of the wavelet code transform table, and wherein said decompression unit, when referring the mother wavelet function, inquires the mother wavelet function of the storing unit by using the transform code to extract the mother wavelet function issued by the storing unit on the basis of the wavelet code transform table such as that taught by Li in order to provide an efficient data-compression method for use in transmitting data from borehole logging tools over a band-limited transmission link providing information as to whereabouts of data values that are rejected due to thresholding.

Regarding claims 13, 14, Benamara discloses the limitation of a second means, for each cutting out of the original time series data, assembles the local peak values of the respective transform coefficients by using one of the threshold values which is sequentially selected in threshold values in descending order so that each of absolute values of each of the assembled groups of local peak values is larger than each of the selected one of the threshold values to generate compression codes on the basin of the respective assembled groups of the local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially transmits the compression codes, starting from one of the compression codes

corresponding to the largest threshold value up to one of the compression codes corresponding to the lowest threshold value, and wherein said decompression unit receives the sequentially transmitted compression codes Do as to reconstruct each of the compression codes, thereby sequentially displaying the reconstructed compression codes (column 5, lines 53 – 67; column 6, lines 1 – 30). Benamara does not disclose expressly the data compression system according to claimed wherein said compression unit comprises a first means, for each cutting out of the original time series data, that assembles the local peak values of the respective component waveforms of the respective levels in their respective frequencies to generate compression codes on the basis of the respective assembled local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially transmits the compression codes, starting from one of the compression codes corresponding to the lowest frequency up to one of the compression codes corresponding to the highest frequency; Li discloses the limitation of the data compression system according to claimed wherein said compression unit comprises a first means, for each cutting out of the original time series data, that assembles the local peak values of the respective component waveforms of the respective levels in their respective frequencies to generate compression codes on the basis of the respective assembled local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially transmits the compression codes, starting from one of the compression codes corresponding to the lowest frequency up to one of the compression codes corresponding to the highest frequency

(column 2, lines 40 – 67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Benamara to include the data compression system according to claimed wherein said compression unit comprises a first means, for each cutting out of the original time series data, that assembles the local peak values of the respective component waveforms of the respective levels in their respective frequencies to generate compression codes on the basis of the respective assembled local peak values, said compression codes correspondingly including the respective assembled local peak values, and sequentially transmits the compression codes, starting from one of the compression codes corresponding to the lowest frequency up to one of the compression codes corresponding to the highest frequency such as that taught by Li in order to provide an efficient data-compression method for use in transmitting data from borehole logging tools over a band-limited transmission link providing information as to whereabouts of data values that are rejected due to thresholding.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571) 272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ACL May 30, 2005

Ajit Patel
Primary Examiner